Canadian Coastal Indicator Developments

National Core Coastal Indicator Workshop May 1-2, 2007

Barb Buckland
Indicator and Reporting Specialist
Strategic Information Integration Directorate
Environment Canada
Gatineau, Quebec, Canada





OUTLINE

Reasons for Canadian participation

Federal environmental reporting

Coastal Marine reporting

Environment Canada future plans



Canadian Participation

Expansion of coastal marine component

Bi-national connections

Georgia Basin Puget Sound

Great lakes

Gulf of Maine

Alignment will improve understanding

Similar science & development processes





Who's Reporting What

Environment Canada

- Environmental Signals
- Regional Indicator Reports

Canadian
Environmental
Sustainability
Indicators

Health Canada

 Environmental Health Indicators

Fisheries Oceans Canada

- Ecosystem Overviews
- Integrated Ecosystem
 Management
 objectives

Statistics Canada

- Human Activity and the Environment
- Ecoconnections

Parks Canada

 State of Ecological Integrity in National Parks

Natural Resources Canada

- State of Forests
- Impacts and Adaptations
- Criteria and Indicators
- Office of Energy
 Efficiency

Transport Canada

Ocean spills

Agriculture and Agri-Food Canada

Agri–Environmental Indicators



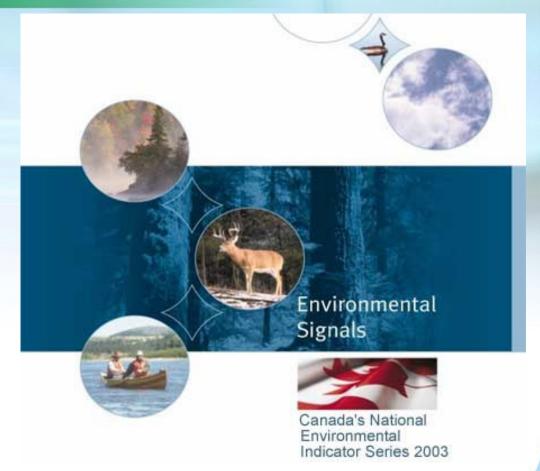
Environment Environnement Canada Canada



Environment Signals Umbrella Reporting

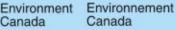
Environmental Signals (70 + indicators)

air quality freshwater quality and quantity soil quality biodiversity stratospheric ozone climate change extreme weather and related disasters toxic substances municipal solid waste acid rain forested landscapes agricultural landscapes energy **Transportation**



Coastal Marine issues not well represented







Inform and Influence

Influence policy - drive change?

Who is our audience?

How is our info being used?

What audiences do we want?

How do we reach our preferred audiences?

What do our audiences want?

Objective reporting?

Economic valuation and/or costs?

Prediction?

Scenarios?

Policy options?

How does information get to the next level of decision making?





Coastal Marine Reporting

Three bi-national initiatives

Georgia Basin Puget Sound

Great Lakes

Gulf of Maine

St. Lawrence River

Large Ocean Management Areas

human activities atlas

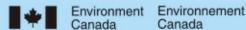
ecosystem objectives

conservation objectives

ecosystem overviews

National Parks

Ecological integrity framework (terrestrial)





British Columbia's Coastal Environment

Built on partnerships provincial-federal-university

Mountain top to 200-mile limit

Six issue papers

Population/economic activity Industrial contaminants

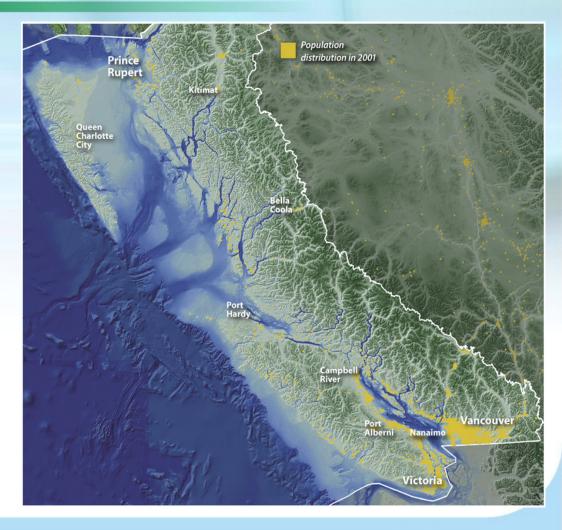
Fisheries

Ecosystem protection

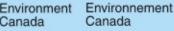
Biodiversity

Climate change

No attempt to rate status









Climate Impacts and Adaptations

Natural Resources Canada

Climate change effects on coastal zones

Accelerated sea level rise

coastal flooding

enhanced erosion

land loss

Storm changes

storm tracks

storm intensity

Water temperatures

shorter ice season

enhanced coastal failure in permafrost regions

Reduced sea ice

greater open-water fetch

more energetic waves

Exacerbated coastal hazards

Frequency and magnitude of stormsurge flooding

Storm-wave runup

Ice ride-up or pile-up

Coastal slope failure

Shoreline erosion

Impacts on coastal infrastructure and coastal habitat



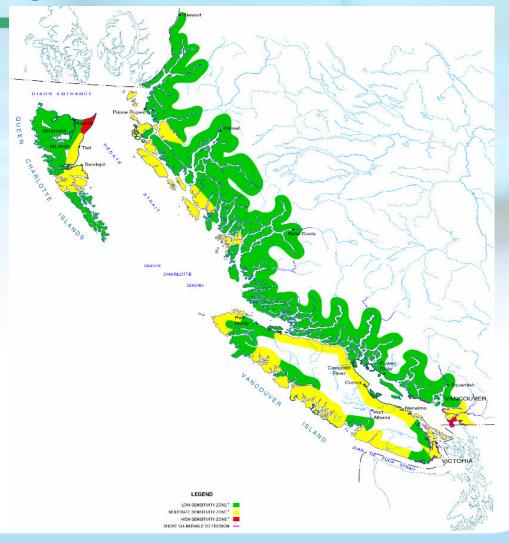


Coastal Sensitivity to Sea-level Rise

sensitivity index

- Low (0 4.9)
- Moderate (5.0 14.9)
- High (15 and up)
- Present day submerging areas









Northern Signals draft report

Pan-northern scope

Multi partner based

Drivers of change

Climate change

Governance

Development

Contaminants

Ecosystem health

Land, water, air biodiversity

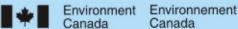
Human health and well being

Health

Social cultural

Social economic







Plans

Environmental Signals: Coastal Indicators

In Progress
Inventory
Regional cohesion

Next Steps
House in order
External partners

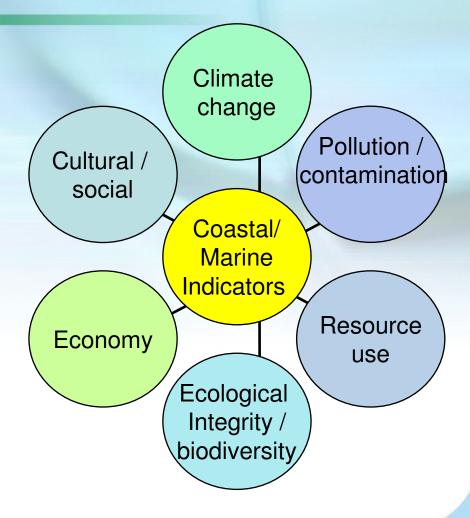






Issues inventory + draft framework

Theme / description (based on 22 reports)	Number of reports that used theme		
Fisheries/aquaculture	9		
Habitats / system dimensions	9		
Physical and chemical characterization	9		
Species / biodiversity	9		
Management, IM, conservation	8		
Eco condition / biotic state / Ecological Integrity	8		
Pollution / contamination	8		
Water quality	7		
Land use / development / sustainable development	6		
Social demographics / socio- environment	6		
Climate change	5		
Human uses / pressures	5		







Mapping reporting into framework

DRAFT FRAMEWORK	Georgia Basin Puget Sound	Great Lakes	Gulf of Maine	St. Lawrence River
Pollution contamination	solid waste, recycling Shellfish toxics in harbour seals	contamination	Eutrophication contaminants	sediments
Resource use	urbanization and forest change	land use - land cover resource utilization	Fisheries aquaculture	Biological resources
Ecological Integrity biodiversity	river, stream, lake quality air quality marine species at risk marine water quality	biotic communities invasive species aquatic habitats & coastal zones	aquatic habitat	Shorelines water
Climate change		climate change	climate change	
Economy			coastal development	
Cultural social	population health	human health		





Recap

Working towards national coastal indicators

Striving to understand users and influence

Good regional and sector work available

Multi-partner undertaking

Alignment/cohesion with US initiatives key



Websites

Environmental Signals: 2003

http://www.ec.gc.ca/soer-ree/English/Indicator_series/default.cfm#pic

British Columbia's Coastal Environment: 2006

http://www.env.gov.bc.ca/soe/bcce/

Puget Sound Georgia Basin Ecosystem Indicators

http://www.epa.gov/region10/psgb/indicators/

State of the Great Lakes: 2005

http://binational.net/solec/sogl2005_e.html

Monitoring the State of the St. Lawrence River

http://www.slv2000.qc.ca/plan_action/phase3/biodiversite/suivi_ecosysteme/portrait_a.htm

Gulf of Maine council Ecosystem Indicator Partnership

http://www.gulfofmaine.org/esip/

Stormy waters rising seas: the vulnerability of Canada's coastal zones to climate change

http://adaptation.nrcan.gc.ca/speakerseries/pdf/presentation_forbes_for_web_e.pdf

Atlas of Canada: Coastal sensitivity to sea level rise

http://atlas.nrcan.gc.ca/site/english/maps/climatechange/potentialimpacts/coastalsensitivitysealevelrise

Parks Canada State of Protected Heritage Areas: Ecological Integrity

http://www.pc.gc.ca/docs/pc/rpts/etat-state-2005/index_E.asp

